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EXAMINER

QUASH, ANTHONY G

ART UNIT PAPER NUMBER

2881

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/724,707

Applicant(s)

KRICHTAFOVITCH ET AL.

Examiner

Anthony Quash

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4,7 and 9-38 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7 and 9-38 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/24/05; 3/7/06</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

Claims 5-6,8 have been canceled by applicants' amendment, filed 10/24/05.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2,4,7,10,18-19,22-23,25,27-30,34-38, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosaka [5,138,348]. As per claims 1,4,7,10,13,18,22,25,27-30,38 Hosaka [5,138,348] teaches producing an electric field in an immediate vicinity of a corona electrode, heating at least a portion of the electrode corona electrode to a temperature sufficient to mitigate an undesirable effect of an impurity formed on the corona electrode periodically heating includes the step of monitoring an electrical characteristic of the corona electrode and in response, heating the portion of the corona electrode. See Hosaka [5,138,348] abstract, figs. 1,5-9,21, col. 2 lines 25-35, col. 3 line 15 – col. 4 line 60, col. 5 lines 12-40, col. 9 line 55 – column 10, col. 11 lines 1-5,14-17,25-55, col. 13 lines 40-52, col. 14 lines 29-67, col. 15 lines 1-32,55 – column 17, col. 18 lines 10-35, col. 19 lines 60-67, col. 22 line 60-65, col. 23 lines 54-65, col. 25 lines 1-3, col. 27 lines 4-7, 55-60, col. 29 lines 20-25. However, it does not explicitly state the step of producing an electric field and heating

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not overlapping. It is the examiner's view that this aspect would have been obvious in view Hosaka [5,138,348]. Hosaka [5,138,348] explicitly teaches that the heater can be turned on and maintained for a predetermined period of time. It also teaches that activation of the heater is a result of change in ion current between electrodes. In addition, Hosaka [5,138,348] teaches that heater being used to aid in the removable or particulates/contaminants. See Hosaka [5,138,348] col. 3 lines 15-65, col. 15 line 55 – col. 16 line 10, col. 17 lines 1-25. Hosaka [5,138,348] also teaches that it is known to cut off unnecessary electric fields. See Hosaka [5,138,348] col. 11 lines 40-55, col. 18 lines 10-26, col. 23 lines 50-65, col. 27 lines 1-10. It would have been obvious to one of ordinary skill in the art at the time the invention was made to not have the step of producing a high intensity electric field and heating to overlap in order to prevent the overheating of the corona electrode during the removal of particulates/contaminants/oxides from the electrodes.

As per claims 2,23, Hosaka [5,138,348] teaches all aspects of the claims except for explicitly stating that a portion of the corona electrode comprises a metal selected from a group consisting of silver, lead, zinc and cadmium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a portion of the corona electrode comprises a metal selected from a group consisting of silver, lead, zinc and cadmium, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

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As per claim 19, Hosaka [5,138,348] teaches the plurality of electrodes being divided into a plurality of portions and the step of applying the heating current being repeated to with respect to each of the portions. See Hosaka [5,138,348] col. 17 lines 1-48, col. 18 lines 10-25.

As per claims 34-37, Hosaka [5,138,348] teaches the heating step including the step of applying an electric current to the corona electrode to cause the corona electrode to attain the temperature sufficient to mitigate the undesirable effect, producing the electric field in an immediate vicinity of an ionizing edge of the corona electrode, and heating a plurality of corona electrodes. See Hosaka [5,138,348] abstract, figs. 1-52, col. 2 lines 25-35, col. 3 line 15 – col. 4 line 60, col. 5 lines 12-40, col. 9 line 55 – column 10, col. 11 lines 1-5,14-17,25-55, col. 13 lines 40-52, col. 14 lines 29-67, col. 15 lines 1-32,55 – column 17, col. 18 lines 10-35, col. 19 lines 60-67, col. 22 line 60-65, col. 23 lines 54-65, col. 25 lines 1-3, col. 27 lines 4-7, 55-60, col. 29 lines 20-25.

Claims 1-30,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita [6,039,816]. As per claims 1,4,18,22,38 Morita [6,039,816] teaches a method of operating a corona discharge device comprising the steps of: producing a high-intensity electric field (inherent, since the corona discharge produces an electric field) in an immediate vicinity of a corona electrode and heating (abstract) at least a portion of the corona electrode to a temperature sufficient to mitigate an undesirable effect of an impurity formed on said corona electrode. It also teaches converting a portion of an initial corona electrode material of the corona electrode using a chemical reaction that

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decreases the generation of a corona discharge by-product. In addition, Morita [6,039,816] teaches step of producing a high intensity electric field includes applying a voltage to said corona electrode (inherent, since the corona discharge produces an electric field) sufficient to cause a corona discharge from said corona electrode. Also see Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50. However, Morita [6,039,816] does not explicitly state, the step of producing a high electric field and heating not overlapping. It is the examiner's view that Morita [6,039,816] does however teach this aspect. This is made evident when Morita [6,039,816] states, "... that the heater heats the ozonizing element 60 to a temperature of approximately 40 degrees Celsius, even when power to the ozonizing element 60 is shut off, to thereby prevent dew condensation on the ozonizing element 60." See Morita [6,039,816] col. 10 lines 34-36. In addition, Morita [6,039,816] states, "Because the thermistor having a positive characteristic increases in resistance with an increase in temperature, the thermistor connected to the heat generating element shuts off current flow to the heat generating element after a predetermined time has elapsed, thereby prevent overheating of the discharge element." Morita [6,039,816] col. 5 lines 8-13. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to have the step of producing a high intensity electric field and heating not overlap in order to prevent overheating of discharge electrode as taught in Morita [6,039,816]. It also would have

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been obvious to one having ordinary skill in the art at the time the invention was made to have a plurality of corona electrodes, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art.

As per claims 2,23, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating corona electrode comprises a metal or alloy including a metal selected from the group consisting of silver, lead, zinc and cadmium. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the corona electrode comprise a metal or alloy including a metal selected from the group consisting of silver, lead, zinc and cadmium, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

As per claims 3,24, Morita [6,039,816] teaches corona electrode is heated to attain a temperature  $T$  given by the equation  $T > \Delta H_{rxn} / \Delta S_{rxn}$  where  $\Delta H_{rxn}$  is the standard state enthalpy ( $Dh_{rxn}$ ) and  $\Delta S_{rxn}$  is the standard state entropy changes for the oxidation process of a surface material of said corona electrode. See Morita [6,039,816] abstract, col. 4 lines 45-65, col. 16 lines 29-45

As per claim 7, Morita [6,039,816] discloses the step of heating being performed periodically. See Morita [6,039,816] col. 4 line 35 – col. 5 line 15. Also see Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50.

As per claim 9, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating the portion of the corona electrode comprises a material that oxidizes under the influence of air and/or the alloy containing such a material. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the portion of the corona electrode comprise a material that oxidizes under the influence of air and/or the alloy containing such a material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In addition, Morita [6,039,816] does teach the corona discharge creating ozone (see abstract), which the examiner views as being equivalent to oxidizing.

As per claim 10, Morita [6,039,816] discloses the step of periodically heating includes a step of monitoring an electrical characteristic of said corona electrode and, in response, heating said portion of said corona electrode. See Morita [6,039,816] col. 5 lines 1-15, col. 7 lines 40-45, col. 10 line 60 - col. 10 line 2, and col. 16 lines 29-46.

As per claims 11-12,14, Morita [6,039,816] teaches the electrical characteristic being an electrical resistivity/resistance of the corona electrode or a portion of that electrode. See Morita [6,039,816] fig. 11, col. 5 lines 1-25, col. 15 lines 24-45, col. 16 lines 1-10, 29-46. In addition, Morita [6,039,816] inherently teaches measuring the conductivity since conductivity is just the reciprocal of resistivity.

As per claims 13,15-17, Morita [6,039,816] discloses the steps of terminating a heating of said corona electrode in response to detecting a predetermined electrical characteristic of said corona electrode, measuring a period of time since a last heating



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cycle and, in response to a lapse of a predetermined time period, heating said portion of said corona electrode, measuring a time period of a current heating cycle and, in response to expiration of a predetermined period of time, terminating the current heating cycle, and the steps of terminating said step of producing prior to initiating said step of periodically heating and, upon completion of said step of periodically heating, reinitiating said step of producing said high-intensity electric field. See Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50.

As per claim 19, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating the plurality of corona electrodes being divided into a plurality of portions and said step of applying the heating current is repeated with respect to each of said portions. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have the plurality of corona electrodes divided into a plurality of portions, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. With respect to the applicants' claim concerning step of applying the heating current being repeated with respect to each of said portions, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the heating current to each of the portions in order to clean them of debris/impurities/contaminants.

As per claim 20, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating repeated application of said heating current to each of said portions of said corona electrodes being completed for all of said plurality of corona electrodes prior to said step of reapplying said high voltage to any of said portions of said corona electrodes. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the repeated application of the heating current to each of said portions of said corona electrodes be completed for all of said plurality of corona electrodes prior to said step of reapplying said high voltage to any of said portions of said corona electrodes in order to completely clean all the electrodes thereby allowing maximum output when the high voltage is reapplied.

As per claim 21, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating the steps of interrupting application of a high voltage, applying the heating current, and reapplying said high voltage are performed serially for each of the portions of corona electrodes so that said high voltage is interrupted, and the heating current is applied, to a single portion of said corona electrodes at any one time, the other portions continuing to have said high-voltage applied thereto. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the steps of interrupting application of a high voltage, applying said heating current, and reapplying said high voltage be performed serially for each of said portions of corona electrodes so that said high voltage is interrupted, and said heating current is applied, to a single portion of said corona electrodes at any one time, the other portions continuing

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to have said high-voltage applied thereto in order to clean the electrodes while simultaneously still producing ozone.

As per claim 22, Morita [6,039,816] discloses a corona discharge device comprising a high voltage power supply connected to corona electrodes generating a high intensity electric field (inherent, since the corona discharge produces an electric field); a low voltage power supply connected to said corona electrodes for resistively heating said corona electrodes; and a control circuitry for selectively connecting said high voltage power supply and low voltage power supply to said corona electrodes.

See Morita [6,039,816] col. 13 lines 35-45. Also see Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50.

As per claim 25, Morita [6,039,816] discloses a timer (col. 4 line 64 -col. 5 lines – 55), the control circuitry responsive to said timer for periodically applying said low voltage to said corona electrodes. See Morita [6,039,816] col. 8 lines 1-5, col. 13 lines 35-45. Also see Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50.

As per claim 26, Morita [6,039,816] discloses control circuitry comprises a switch. See Morita [6,039,816] col. 10 lines 15-20.

As per claim 27, Morita [6,039,816] discloses measurement circuitry configured to provide an indication of a condition of said corona electrodes, said control circuitry responsive to said indication for applying said low voltage to said corona electrodes. See Morita [6,039,816] col. 5 lines 1-30, col. 9 line 60 – col. 10 line 5, col. 13 lines 35-40.

As per claim 28, Morita [6,039,816] discloses the measurement circuitry indicates an electrical resistance of said corona electrodes. See Morita [6,039,816] col. 15 lines 30-40, 50-60, and col. 16 lines 1-35.

As per claims 29-30, Morita [6,039,816] discloses low voltage power supply is configured to supply a controlled magnitude of electric power to said corona electrodes, the low voltage power supply being configured to periodically accumulate and discharge a controlled amount of electromagnetic energy to said corona electrodes. See Morita [6,039,816] col. 13 lines 35-45. Also see Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 1-50.

Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morita [6,039,816] in view of Krichtafovitch [6,504,308]. As per claim 31, Morita [6,039,816] teaches all aspects of the claim except for explicitly stating the low voltage power supply comprises a fly-back power converter. Krichtafovitch [6,504,308] does teach the low voltage power supply comprises a fly-back power converter. See Krichtafovitch [6,504,308] col. 10 lines 30-45. Therefore, it would have been obvious to a person of

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ordinary skill in the art at the time the invention was made to have the low voltage power supply comprises a fly-back power converter in order ensure silent operation as taught in Krichtafovitch [6,504,308].

Claim 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morita [6,039,816] in view of Rodden [6,270,733]. As per claims 32-34, Morita [6,039,816] teaches a corona discharge comprising the steps of: generating a high intensity electric field (inherent, since the corona discharge produces an electric field) in a vicinity of a corona electrode, converting a portion of an initial corona electrode material of said corona electrode using a chemical reaction that decreases generation of a corona discharge by-product; and heating the corona electrode. See Morita [6,039,816] abstract, col. 2 lines 10-32, 50-67, col. 3 lines 1-5, 14-25, 50-55, col. 4 lines 10-15, 20-30, 35-48, 50-67, col. 5 lines 1-30, 45-55, col. 6 lines 1-5, col. 7 lines 40-45, col. 8 lines 1-5, 35-40, 55-67, col. 9 line 62 – col. 10 line 40, col. 13 lines 35-45, col. 15 lines 20-45, and col. 16 lines 35-50. Morita [6,039,816] also teaches the step of interrupting the step of generating the high intensity electric field in the vicinity of the corona electrode. See Morita [6,039,816] col. 10 lines 34-36. However, Morita [6,039,816] does not explicitly state heat the corona electrode to a temperature sufficient to substantially restore the converted part of the corona electrode material back to the initial corona electrode material. Rodden [6,270,733] teaches heating an electrode which suppresses the production of ozone (by product) and that the heating of the ozone further reduces the ozone back to oxygen. See Rodden [6,270,733] col. 1 lines 20-35. Therefore, this process would revert the mixture of a metal and an oxide by

metal in and oxygen separately. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to heat the corona electrode to a temperature sufficient to substantially restore the converted part of the corona electrode material back to the initial corona electrode material in order to prolong the life expectancy of the corona electrode.

### ***Response to Arguments***

Applicant's arguments filed 1-32 have been fully considered but they are not persuasive. With respect to applicants' arguments with regard to Morita [6,039,816] not heating the electrodes to a high enough temperature, the examiner would like to direct the applicants' attention to col. 4 lines 47-55, which state heating the electrode to 200 degrees Celsius. With regard to applicants' arguments concerning there not being any mention of ionic wind, it is the examiners' view that Morita [6,039,816] does teach this. Applicants' attention is directed to col. 12 lines 35-39. Here Morita [6,039,816] teaches ozone (which is a gas) flowing back toward the ozonizer. With regards to the arguments concerning Rodden [6,270,733], Rodden [6,270,733] states, "The inner electrode 11 is connected to a voltage source 16 by a high voltage line and the outer electrode is grounded. An oxygen containing gas ( $O_2$ ) flows into the annular path 12 between the dielectric 14 and outer electrode 13 where a corona discharge between the electrodes 11,13 converts some oxygen to ozone ( $O_3$ ). The discharge also generates heat. The heat suppresses ozone generation by converting some product back to oxygen." See Rodden [6,270,733] col. 1 lines 32-39.

Should applicants have any additional questions, the applicants are welcomed to schedule a phone or in person interview with the examiner in order to resolve any remaining issues with the case.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent and Published Patent Application Nos. 4,574,326 to Myochin et al, and 2004/0211675 to Dong et al, are considered pertinent to the applicants' disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

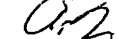
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Quash whose telephone number is (571)-272-2480. The examiner can normally be reached on Monday thru Friday 9 a.m. to 5 p.m..

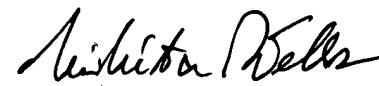
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571)-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A. Quash



4/1/06



NIKITA WELLS  
PRIMARY EXAMINER

04/03/06